

IN THE CLAIMS

Please amend the claims as follows.

Please amend claim 4 as follows:

4. (Amended) The method of claim 1 wherein said first network of trenches intersects said second network of trenches under an angle of about 90 degrees, said angle being measured as an angle created between a first intersection and a second intersection, said first intersection being an intersection of a first plane of a sidewall of a trench pertaining to said first network of trenches and the surface of said semiconductor substrate, said first plane having been extended towards said surface of said semiconductor substrate to enable intersection therewith, said second intersection being an intersection of a second plane of a sidewall of a trench pertaining to said second network of trenches and the surface of said semiconductor substrate, said second plane having been extended towards said surface of said semiconductor substrate to enable intersection therewith.

A2
cont

Please amend claim 5 as follows:

5. (Amended) The method of claim 1 wherein said first network of trenches intersects said second network of trenches under an angle other than 90 degrees, said angle being measured as an

CS99-120

Serial number 09/418,029

*A2
cancel*

angle created between a first intersection and a second intersection, said first intersection being an intersection of a first plane of a sidewall of a trench pertaining to said first network of trenches and the surface of said semiconductor substrate, said first plane having been extended towards said surface of said semiconductor substrate to enable intersection therewith, said second intersection being an intersection of a second plane of a sidewall of a trench pertaining to said second network of trenches and the surface of said semiconductor substrate, said second plane having been extended towards said surface of said semiconductor substrate to enable intersection therewith.

Please amend claim 11 as follows:

11. (Amended) A method of forming air gaps between metal leads of a semiconductor device, comprising the steps of:

*A3
cancel*

providing a semiconductor substrate whereby the surface of said semiconductor substrate has been provided with points of electrical contact;

forming a first network of trenches in a first level of dielectric said first level of dielectric having been deposited on the surface of said substrate whereby said first network of trenches is filled with a disposable solid layer, creating a first network of disposable solid filled trenches;

CS99-120

Serial number 09/418,029

forming a second network of trenches in a second level of dielectric said second level of dielectric having been deposited on the surface of said first level of dielectric whereby said second network of trenches is in physical contact with and intersects with said first network of a disposable solid filled trenches whereby furthermore said second network of trenches is filled with a disposable solid layer, creating a second network of disposable solid filled trenches;

*A3
cancel* depositing a first thin layer of oxide over the surface of said second layer of dielectric;

etching openings in said first thin layer of oxide said openings to align with said intersects between said first network of trenches and said second network of trenches;

removing said disposable solid layer from said second network of trenches furthermore removing said disposable solid layer from said first network of trenches; and

depositing a second thin layer of oxide over the surface of said first thin layer of oxide thereby closing said openings in said first thin layer of oxide.

15. Please cancel claim 15.

CS99-120

Serial number 09/418,029

Please amend claim 16 as follows:

16. (Amended) The method of claim 11 wherein said first network of trenches intersects said second network of trenches under an angle of about 90 degrees, said angle being measured as an angle created between a first intersection and a second intersection, said first intersection being an intersection of a first plane of a sidewall of a trench pertaining to said first network of trenches and the surface of said semiconductor substrate, said first plane having been extended towards said surface of said semiconductor substrate to enable intersection therewith, said second intersection being an intersection of a second plane of a sidewall of a trench pertaining to said second network of trenches and the surface of said semiconductor substrate, said second plane having been extended towards said surface of said semiconductor substrate to enable intersection therewith.

A4
unit

Please amend claim 17 as follows:

17. (Amended) The method of claim 11 wherein said first network of trenches intersects said second network of trenches under an angle other than 90 degrees, said angle being measured as an angle created between a first intersection and a second intersection, said first intersection being an intersection of a first plane of a sidewall of a trench pertaining to said first network of trenches and the surface of said semiconductor

CS99-120

Serial number 09/418,029

Amended.

substrate, said first plane having been extended towards said surface of said semiconductor substrate to enable intersection therewith, said second intersection being an intersection of a second plane of a sidewall of a trench pertaining to said second network of trenches and the surface of said semiconductor substrate, said second plane having been extended towards said surface of said semiconductor substrate to enable intersection therewith.

Please amend claim 23 as follows:

23. (Amended) A method of forming air gaps between metal leads of a semiconductor device, comprising the steps of:

Amended.

providing a semiconductor substrate;

depositing a layer of metal on the surface of said substrate;

etching said metal layer in a pattern to form metal leads, said metal leads running in a Y-direction said metal leads furthermore having top surfaces;

depositing a first layer of dielectric over the surface of said substrate thereby including said metal leads;

creating trenches in said first level of dielectric said trenches running in a X-direction;

filling said trenches in said first layer of dielectric with a first layer of nitride or another disposable solid;

depositing a second layer of dielectric over the surface of said first layer of dielectric thereby including said first layer of nitride or another disposable solid;

creating trenches in said second level of dielectric said trenches running in a Y-direction said trenches furthermore having intersects with said trenches created in said first layer of dielectric;

filling said trenches in said second layer of dielectric with a second layer of nitride or another disposable solid;

depositing a first thin layer of oxide over the surface of said second layer of dielectric thereby including the surface of said second layer of nitride or other disposable solid;

etching openings in said first thin layer of oxide said openings to align with said intersects between said trenches created in said first level of dielectric and said trenches created in said second layer of dielectric;

removing said second layer of nitride or other disposable solid from said trenches created in said second layer of dielectric furthermore removing said first layer of nitride or other disposable solid from said trenches created in said first layer of dielectric thereby creating a network of trenches in said first layer of dielectric and in said second layer of dielectric whereby said trenches in said first layer of dielectric intersect said trenches in said second layer of

CS99-120

Serial number 09/418,029

dielectric under an angle of about 90 degrees, said angle of about 90 degrees being measured as an angle created between a first intersection and a second intersection, said first intersection being an intersection of a first plane of a sidewall of a trench pertaining to said trenches created in said first level of dielectric and the surface of said semiconductor substrate, said first plane having been extended towards said surface of said semiconductor substrate to enable intersection therewith, said second intersection being an intersection of a second plane of a sidewall of a trench pertaining to said trenches created in said second layer of dielectric and the surface of said semiconductor substrate, said second plane having been extended towards said surface of said semiconductor substrate to enable intersection therewith; and

depositing a second thin layer of oxide over the surface of said first thin layer of oxide thereby closing off said openings in said first thin layer of oxide.

Please amend claim 24 as follows:

24. (Amended) The method of claim 23 wherein said whereby said trenches in said first layer of dielectric intersect said trenches in said second layer of dielectric under an angle other than 90 degrees, said angle of about 90 degrees being measured as an angle created between a first intersection and a second

CS99-120

Serial number 09/418,029

*AS
cancel*

intersection, said first intersection being an intersection of a first plane of a sidewall of a trench pertaining to said trenches created in said first level of dielectric and the surface of said semiconductor substrate, said first plane having been extended towards said surface of said semiconductor substrate to enable intersection therewith, said second intersection being an intersection of a second plane of a sidewall of a trench pertaining to said trenches created in said second layer of dielectric and the surface of said semiconductor substrate, said second plane having been extended towards said surface of said semiconductor substrate to enable intersection therewith.

Claims 25-28. Please cancel claims 25-28.

REMARKS

Examiner Shrinivas H. Rao is thanked for thoroughly reviewing the instant application and for examining the Prior Art.

The Examiner's final Restriction Request is acknowledged and non-elected claims have been canceled. A divisional